1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6

POTATOES (*Patata*)

Potatoes have been for some years the most important commercial plants raised in Malta. First introduced in the early nineteenth century, the acreage used for spring potatoes is now greater than that for any other crop, and the value of potato exports has been exceeded only by that of scrap metal (during the abnormal post-war years of 1951 and 1952). Spring and winter crop acreages combined take up 15 to 20 per cent. of the cultivable land. 311* 244 439]

The cultivation of potatoes varies with season and type of land available. The export crop is entirely raised from imported seed. This is planted in December or early January and the crop is ready for lifting from late March onwards, depending on weather conditions during the growing season. The seed, which accounts for most of the total potato imports, is necessary in order to ensure disease-free, good-yielding stock and its use is economic only as long as a high-price market for early potatoes can be found in Northern Europe. On dry soils which quickly warm up in the Spring and which give a fine yet loose tilth, and under climatic and soil conditions which on average are well-nigh optimum for tuber rather than leaf growth, yields are extremely good for the very short growing season. There are however certain hazards. Cool, wet winters delay sprouting and can both reduce and retard the harvest very severely, as in the seasons 1934-35 and 1950-51. Ground frosts in January may have similar effects as in 1936-37. Cool and humid weather during February and March encourages the appearance of blight and over-favours leaf growth - as, for example, in 1955. A more serious hazard is that of winter rainfall deficiency. As can be seen from the weather records (pp. 48 - 52 and Figs. 7, 19, 25), Malta rarely experiences 'average' weather and low winter precipitation can be expected at least once in every five years, e.g. 1957; rainfall: January 3.85 inches, February 0.25 inches, March 0.46 inches, April 0.41 inches. The thin, light soils, which otherwise are so suitable, are very quickly dried by strong winds and yields then decrease considerably. On non-irrigated land of medium quality, the yield is rarely more than fourfold and usually less. A reduction in yield of the order of 50 per cent. means considerable loss. For this reason, a very large amount of the best irrigated land is used for this crop in order to ensure good returns. Total yields are further depressed by the very short growing season, by local mineral deficiencies, by inadequate spraying treatment against fungus diseases, and by poor manuring. The general reliance on sulphate of ammonia is not only misplaced but may be positively dangerous.

The summer crop, unimportant in size and acreage, is obtained from the sowing of local seed in early summer and harvesting in September. This can only be done on irrigated or very fertile land and is entirely for the Maltese market. The winter crop, approximately half as important in bulk as that of the spring, is from local seed sown in early autumn and harvested in December and January. This supplies most of Maltese requirements. In these cases also, vagaries of weather result in great fluctuations in yield.

Potato cultivation on dry and irrigated land makes heavy demands on labour for sowing, tilling and lifting. Since climatic conditions on average give good sprouting ratios, the tubers are usually divided into thirds and quarters for reasons of economy. This economy becomes less marked when hand labour becomes as costly as at the present moment. The heavy water demands of the growing plant make continual hoeing essential, and, since the harvest is short and the crop value highest at the end of April, the demand for labour reaches a dangerously high peak at this time. Marketing of the export potato crop is equally hazardous. The high-priced earlies can only be sold in the relatively wealthy markets of Northern Europe. Freightage is costly, averaging £5 10s. 0d. a ton Marsa to Glasgow. [939]

Official policy is to encourage the replacement of varieties such as Arran Banner by earlier varieties - 'scrapers' - of wider market appeal. The economics of early potato growing are further complicated by the year-to-year fluctuations in acreage. These variations correspond to a year's time-lag in reaction to changes in market price. Thus, in 1957, a glut, which resulted from market rather than producing conditions, was followed by a surplus of seed and 311* 244 439

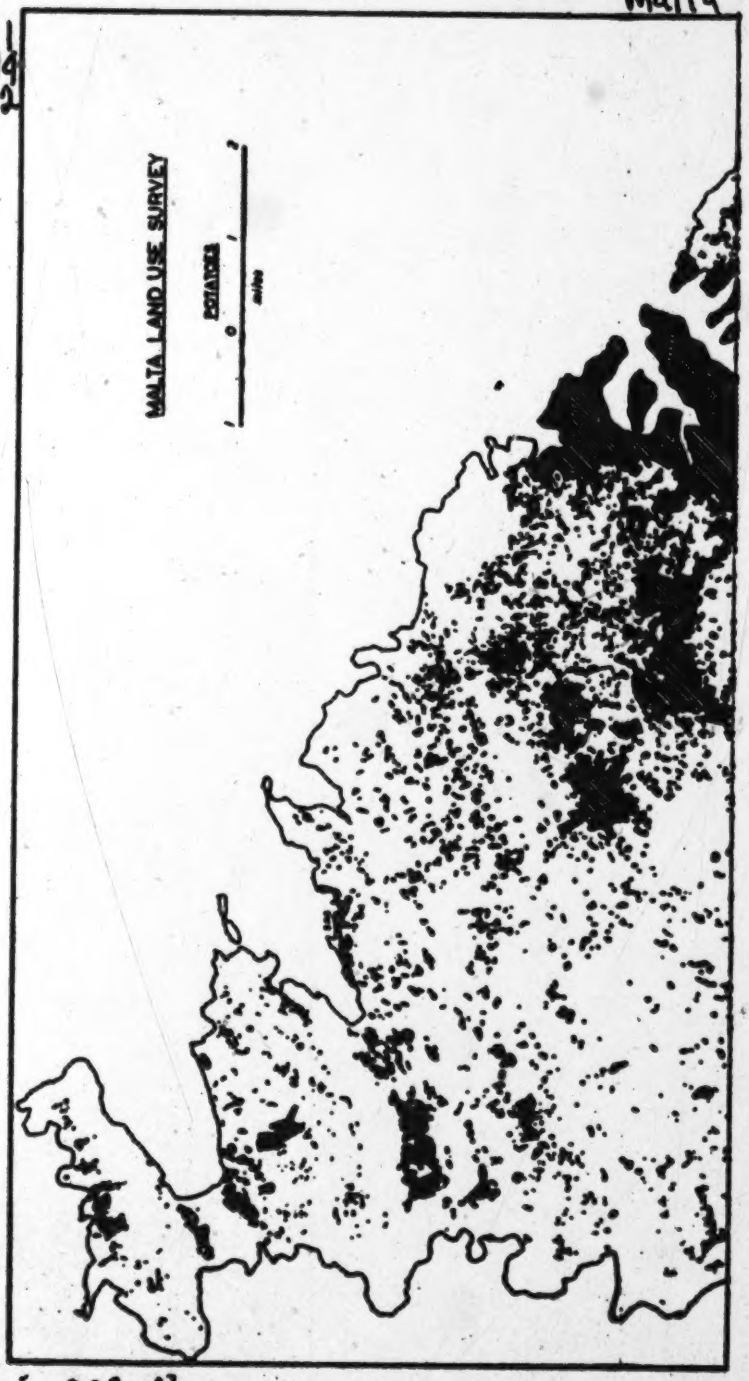
[Text Continues on p. 211]

1: Bowen-Jones et al. K-5 (1955-1958) 1961

EZ6 Malta EZ6

Malta

*311
●244
102



[p. 208-A]

Fig. 78 Malta: Land Use Survey: Potatoes.

1: Bowen-Jones et al. K-5 (1955-1958) 1961

EZ6 Malta EZ6

Malta

311*
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249

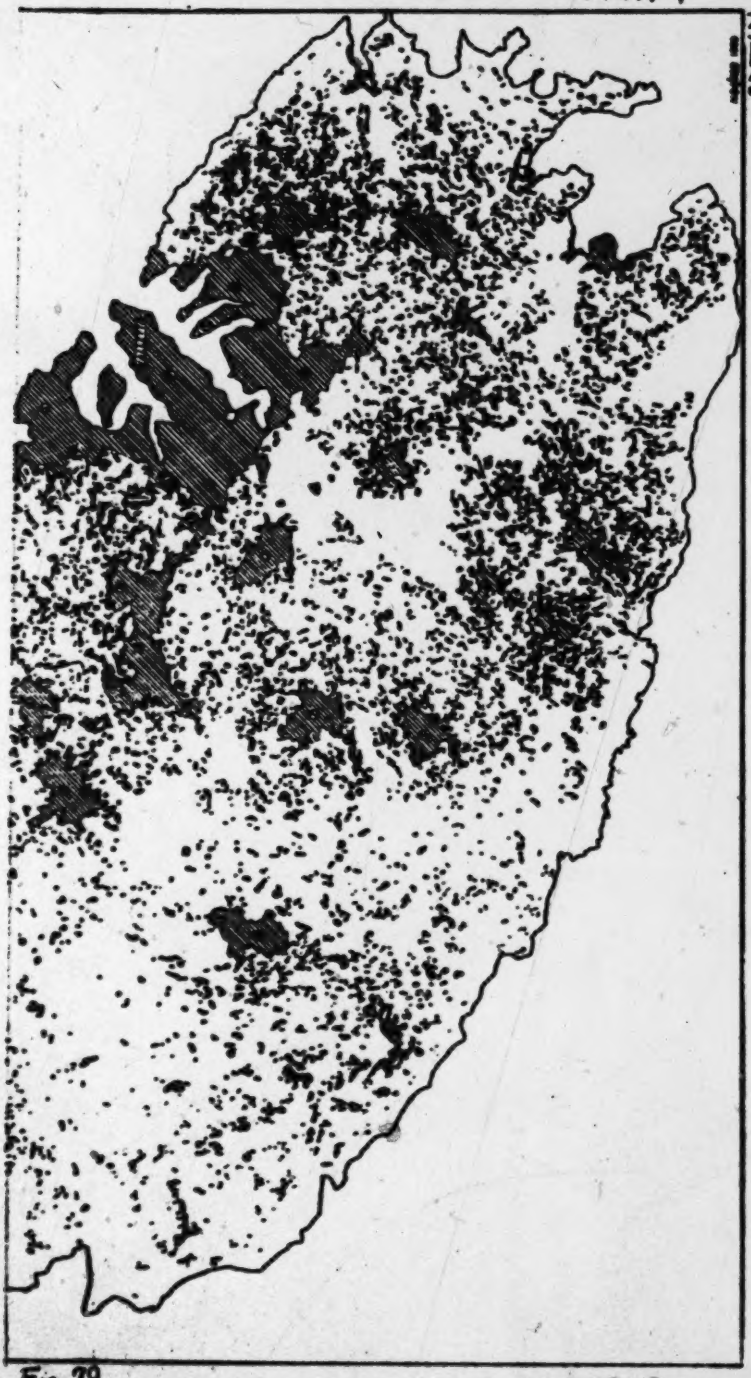

Fig. 79

ata: Land Use Survey: Potatoes.

p. 208-B

*311
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Fig. 80 Gozo: Land Use Survey: Potatoes.

1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6
GOZO

1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6

a reduction in the acreage planted during the following winter. In spring 1958, the export market could have absorbed more than the total production. Official encouragement to re-expand cultivation followed. Moreover, the main importing countries are those in which regulations governing the health of imported crops are most severe, and in which competition is most keen. When to these factors one must add two more, viz. the very high water demands of the crop and its comparatively low bulk value and high freight costs; then a very considerable doubt arises concerning the rationality of this sector of agriculture. On unirrigated land, a potato crop leaves the soil deprived of most of its water. On irrigated land it competes with crops of higher bulk value some of which are already cultivated on a smaller scale, such as strawberries, globe and Jerusalem artichokes, asparagus, sub-tropical fruits, etc. Potatoes require no less labour, no less fertiliser, and are much less amenable to handling by fast land or air transport. The impression left by the crop survey is that Malta has almost somnambulistically developed this specialisation and that the ecological and economic implications have never been seriously examined.

Figs. 79 and 80 show the extent of land under potatoes during March and April. In Malta, the main concentrations are to be found in three different types of region. First, cultivation is widespread on the Globigerina lands. Most intense around the 'casals' and villages of the east and south, it seems more to be associated with human rather than with physical factors (see Chapter VIII). A marked thinning out is noticeable on the higher central slopes rising westward to the Coralline uplands. Secondly, there exist the very important concentrations in the major irrigated basins of the west and north such as Wied tal-Pwales, the Mellieha isthmus and the Marfa oases. Lastly, potato cultivation is of considerable extent on the smaller and more dispersed irrigated plots of the Upper Coralline plateaux, e.g. Hofret ir-Riss. In the predominantly dry-farmed upland basins of Bingemma and Mizieb, the acreage is relatively small.

Early potato cultivation in Gozo is of much less importance, the island being one further step removed from the export market. Concentration is significantly greatest within easy reach of the settlements. In addition, potato growing is of importance in the tree-fruit and vegetable zones of the north-east. The crop is almost entirely absent from the more remote areas.

TREE CROPS

In the Maltese Islands are to be found a great variety of tree-crops of all kinds on irrigated and non-irrigated land. This variety, exemplified in one field in the Wied Qieigha which carries apples, peaches, loquats, pomegranates, citrus fruit and vines, is in some ways detrimental to cultivation standards. Only a very few regions are completely devoid of tree-crops. Thermal conditions make possible the growth of a crop range extending from the temperate pome fruits to sub-tropical and tropical types such as the date and banana (albeit with poor results in the latter cases). Low water availability in the soil is the main restrictive factor. Irrigation generally doubles the yields of fruit crops and is essential for citrus cultivation. It is, however, certain that yields could be considerably increased, even on unirrigated land, by improvement of stock quality, by reducing disease and pest infestation and by less intercultivation. One of the main problems in Malta and Gozo is that, as elsewhere in the world, farmers with a strong subsistence-farming streak in their makeup are apt to prefer the security of inter-cultivated poor crops to hazardous but rewarding specialisation.

One non-human factor which makes the arboriculturist's task more difficult is the wind-humidity complex. As noted in Chapter II, the effects of high wind velocity on transpiration and in producing physiological drought are considerable. High humidity, even in summer, produces special problems of plant pathology. Successful competition with more sophisticated producers possessing greater natural advantages seems unlikely.

EZ6 Malta EZ6
Malta

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102
244

[p. 216-A]

Fig. 85 Malta: Land Use Survey: Tomatoes, Marrows, etc.

1: Bowen-Jones et al. K-5 (1955-1958) 1961

EZ6 Malta EZ6
Malta

311*
102
149

Fig. 85 Malta: Land Use Survey: Tomatoes, Marrows, etc.

[p. 216-B]

1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6
Gozo

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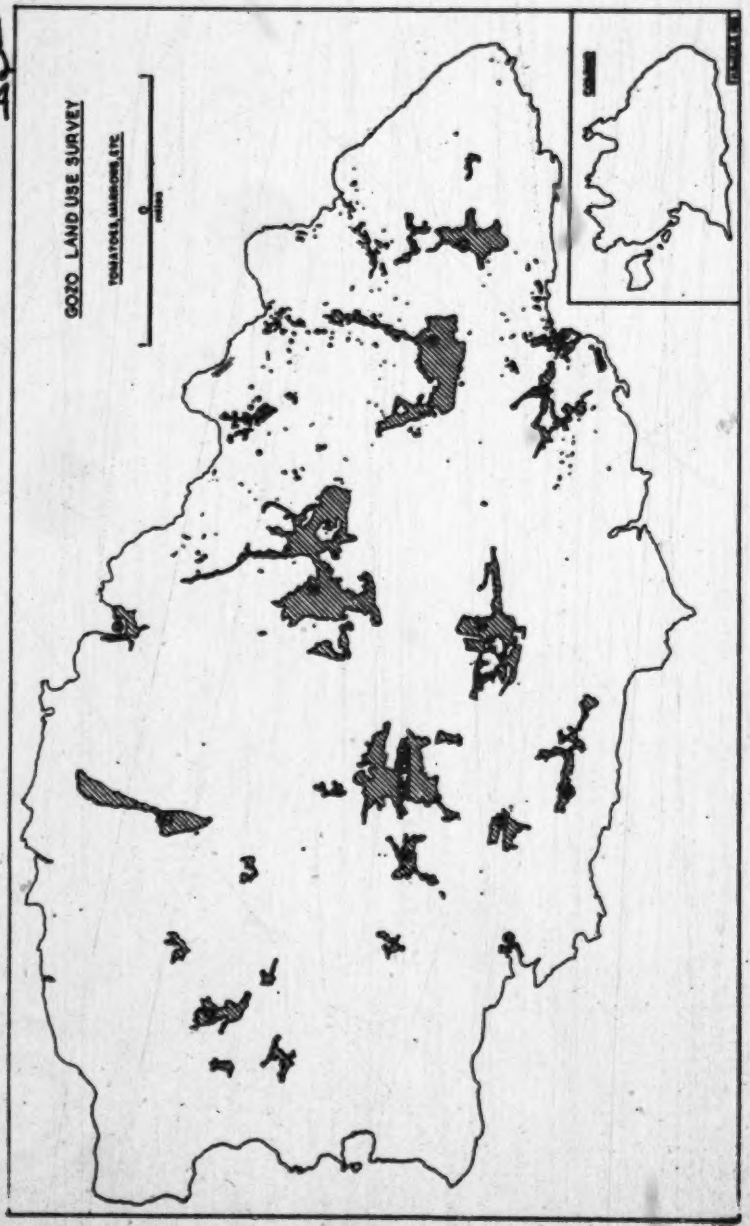

Fig. 88 Gozo: Land Use Survey: Tomatoes, Marrows, etc.

1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6

VEGETABLES - TOMATOES AND CUCURBITS

The survey period, as noted previously, was largely confined to the spring season and thus coincided only with the earliest field plantings of these crops. Later in the agricultural year, the areas involved become more extensive (see below: Tilled Land), but the distributions here noted are indicative of special conditions for cultivation. 311* 244

The distribution of these crops in Malta is shown in Fig. 85. Since 1957, the growing of tomatoes under glass has received official encouragement, but production by this means is as yet on a small scale and was previously all but non-existent. The planting of field tomatoes appears to take place later than climatic conditions make necessary and the harvest misses the main early markets in Europe. Export potentialities require further consideration as does the possibility of extending the areas of production. A small acreage of early tomatoes is planted out on non-irrigated land but the main districts correspond closely to the irrigation areas of the north and west. Particularly important is the Wied tal-Pwales, wherein there exist minor regional concentrations (see Chapter VIII). Other, smaller areas are found in the Marfa oases, Mellieħa isthmus and the Wied il-Ghasel.

During the survey period, the cucurbits are represented mainly by the dry-land gourds *qaragh baghli*, which are particularly associated with the Żabbar district. This regional specialisation is at the moment not fully explicable but is of some traditional standing. Water-melons, pumpkins, etc., are found in the irrigated zones, for example in the Wied tal-Pwales and near Mellieħa. In other regions, such as that around Mġarr, the seed is usually sown about the end of April. Such plots have been omitted from the distribution maps because of the critical time variation from year to year. Here, as elsewhere, much depends on the rotation and the availability of ground water.

In Gozo (Fig. 86) during March and April, tomatoes predominate over the other crops of this group. Wieds Ramla, San Blas and Daħlet Qorrot are the main areas of cultivation, mainly as the result of shelter and the availability of water from the mesa spring-lines. In Wied Ramla (see Chapter VIII) there is a special association with the warm, sandy soils of the eastern slopes. These crops are also of some importance around Mġarr and Għajnsielem, associated partly with special soil conditions but also with nearness to the harbour from which they are shipped to Malta.

ONIONS (*Basal*) (Figs. 87 and 88)

These are grown on the better dry soils as well as in irrigated areas. They have been distinguished from other vegetables because of their traditional and potential status as an export crop. Most holdings have an onion patch to supply domestic needs, but there is also a growing, though fluctuating export trade. The dark-skinned 'red' Spanish types are most suitable for Maltese climatic conditions and are also most in demand in overseas markets. This to some extent conflicts with the domestic demand for the flat, white types which do not store well.

In Malta, onions of all varieties are cultivated in small plots throughout the Globigerina lands. A belt of rather higher density stretches through the Central Region, extending from Attard to Qrendi. The Siġġiewi district is of especial importance, since here alone are grown considerable numbers of the red-skinned variety most suitable for export. A rather strange concentration is also found on the steep, terraced slopes of l-Imtaħleb.

In Gozo, onion cultivation is general around the villages. The only significant regional concentration is that on the southern flank of the Xewkija Ridge.

OTHER VEGETABLES

During March and April, field vegetables are confined to crops such as artichokes, particularly grown for Lenten consumption, early or seeding brassicas, garden crops including phaseolus beans and lettuce together with minor root vegetables such as carrot and kohl rabi.

1: Bowen-Jones et al. K-5 (1955-1958) 1961

EZ6 Malta EZ6
Malta

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102
244

[p. 220-A]

Fig. 87 Malta: Land Use Survey: Onions.

1: Bowen-Jones et al. K-5 (1955-1958) 1961

EZ6 Malta EZ6
Malta

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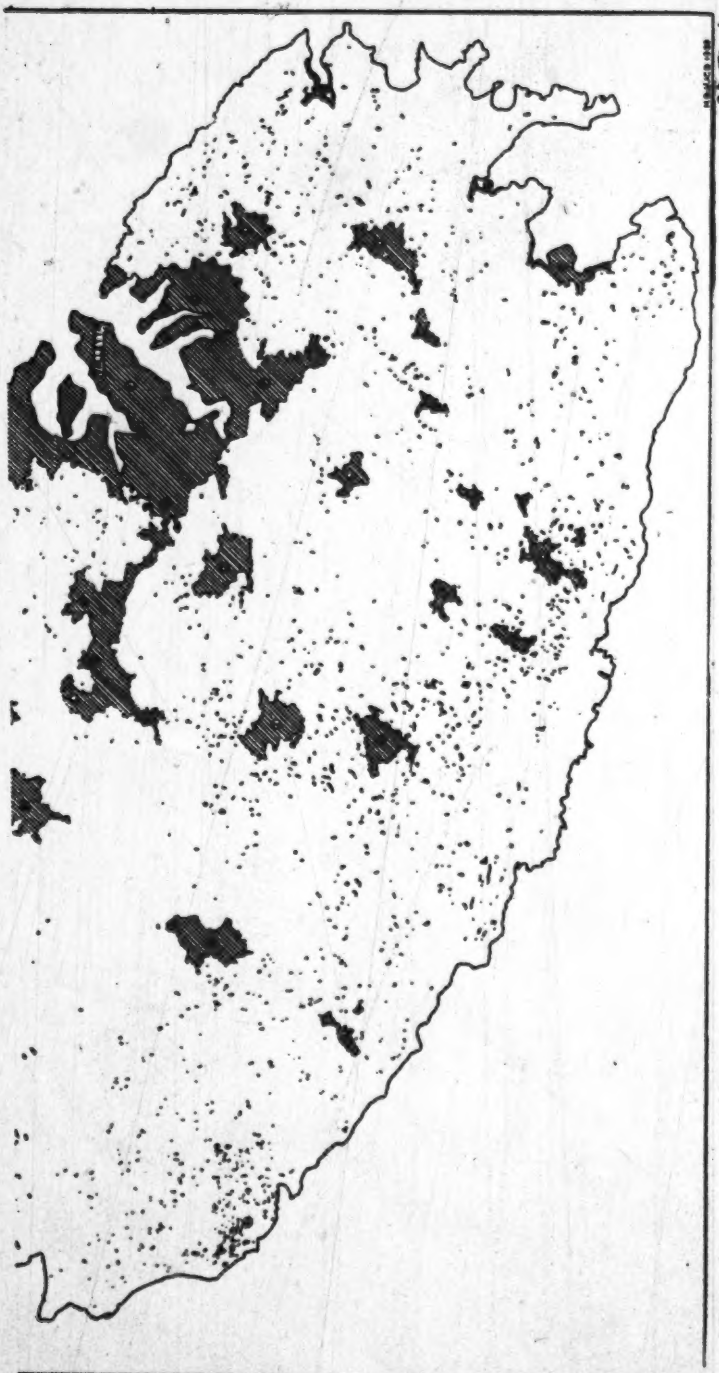

Fig. 87 Malta:
Land Use Survey: Onions.

[p. 220-B]

1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6
Gozo

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102
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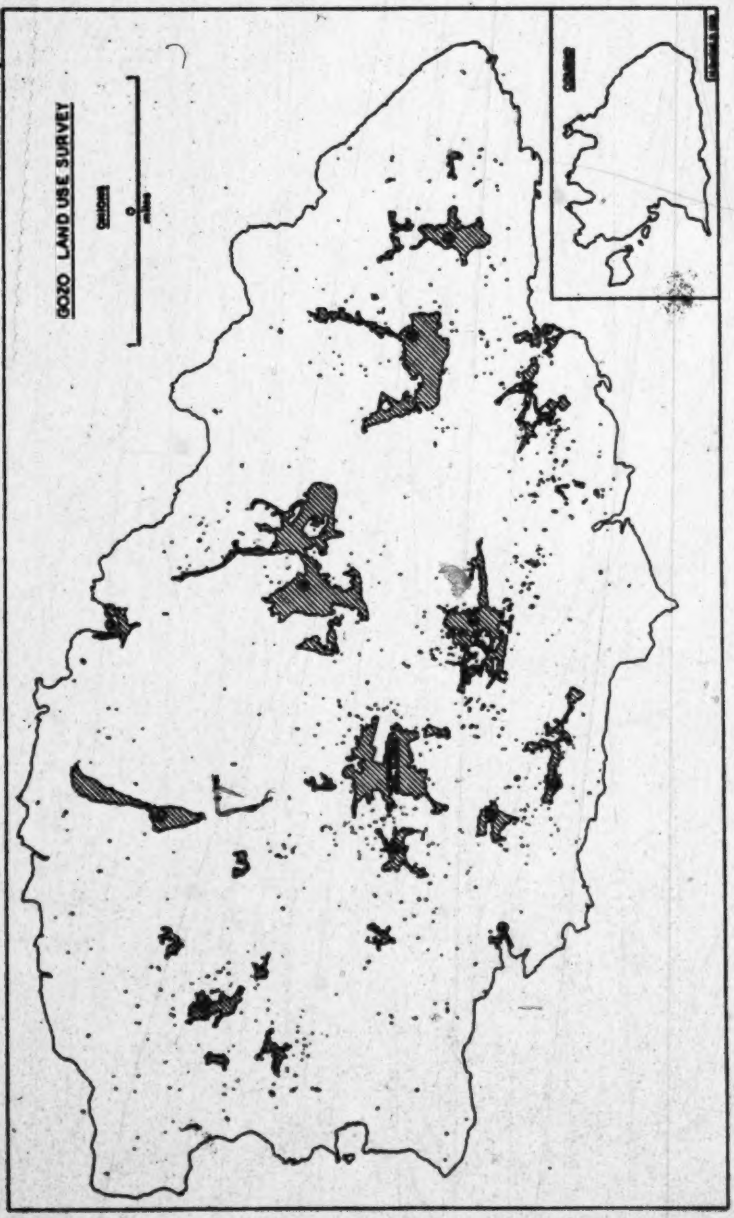

Fig. 88 Gozo: Land Use Survey: Onions.

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Malta

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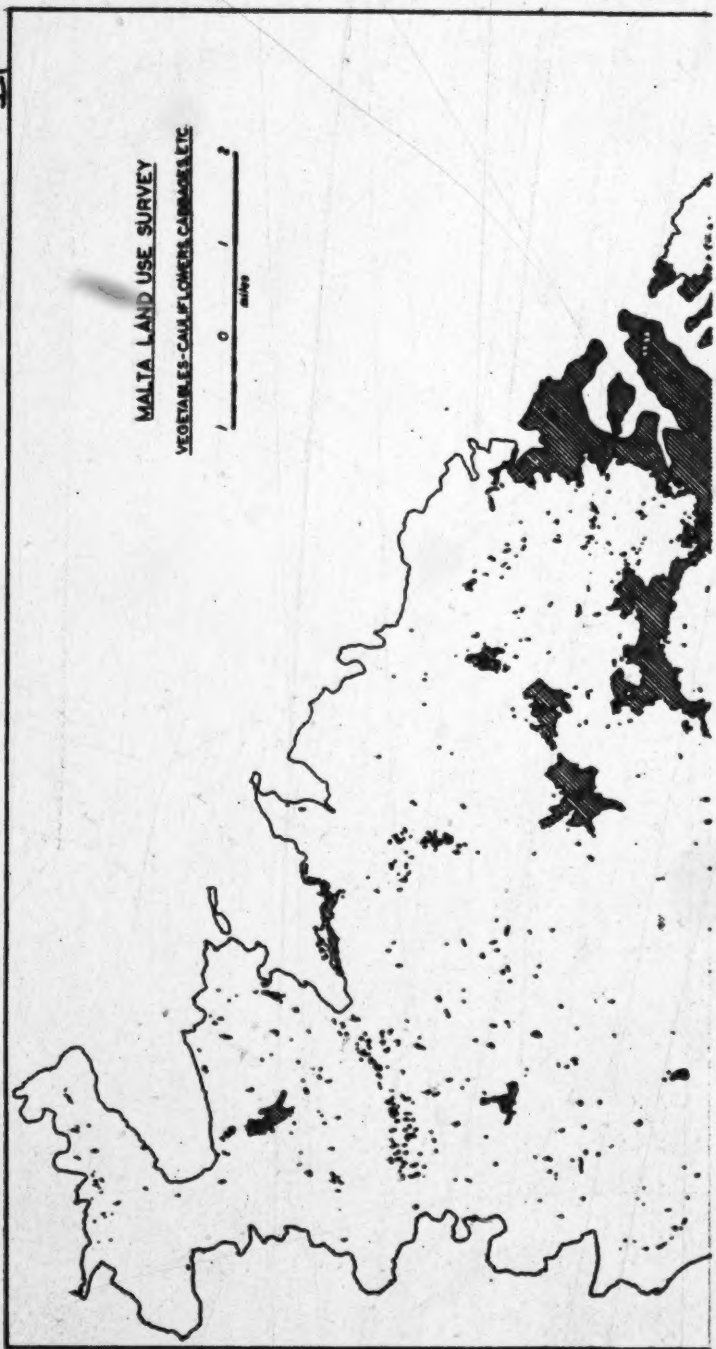

[p. 222-A]

Fig. 89 Malta: Land Use Survey; vegetables.

1: Bowen-Jones et al. K-5 (1955-1958) 1961

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Malta

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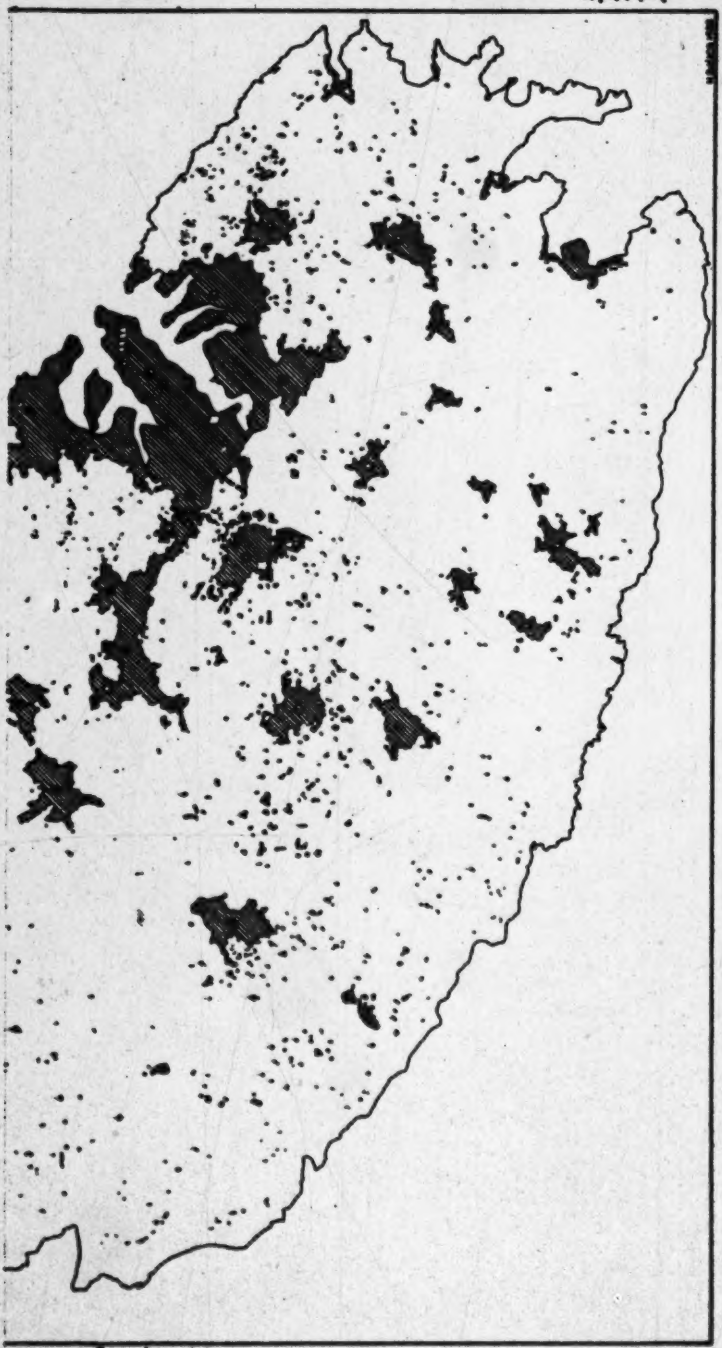

Fig. 89 Malta:
: Land Use Survey: Vegetables.

[p.222-B]

1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6
Gozo

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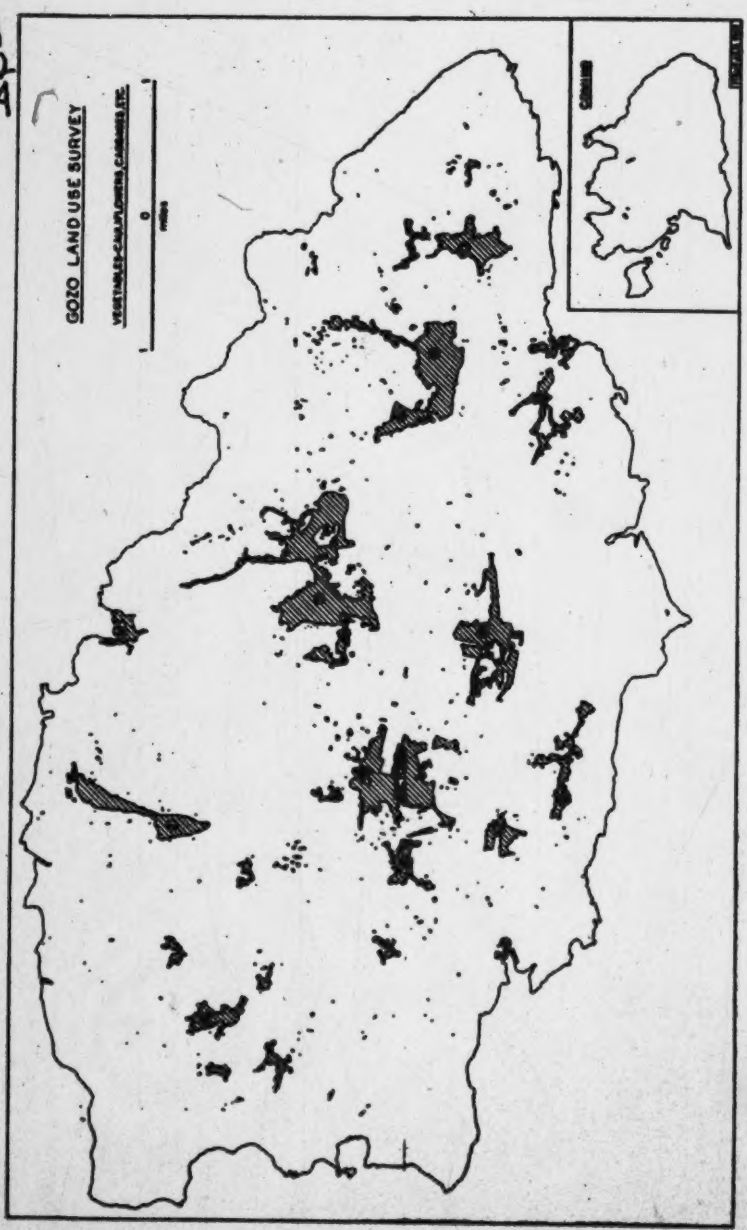

Fig. 80 Gozo: Land Use Survey: Vegetables.

Various types of location may be observed. In Malta (Fig. 89) there are, first, the main irrigated vegetable zones of the Wied tal-Pwales and Wied tal-Mistra where cultivation is carried out on a commercial scale. A great variety of crops are raised, but artichokes assume a particular importance. Secondly, in the Bur Marrad district of the Wied il-Ghasel, there is considerable specialisation, particularly in artichokes and to a lesser extent in brassicas. Thirdly, there is the group of districts around certain settlements with urban-fringe market gardening. Near Żabbar, mixed vegetables, predominantly brassicas, are cultivated in many small plots, often worked by part-time farmers. Around Qormi, the possibility of irrigation has encouraged a very considerable spread of market gardening which further extends into Hamrun. Near Rabat, a similar, smaller zone is also of some importance for mainly non-brassica crops.

Lastly, a belt of vegetable cultivation occurs on the high central platforms between Żebbug-Siġġiewi and the Rabat-Dingli upland. In Fig. 89 the importance of this zone is not fully illustrated. Fig. 91, showing tilled land during the survey period, gives an indication of the considerable area which is, later in each year, devoted to summer vegetables. This is pre-eminently the area of brassica cultivation with cauliflowers of particular importance. The reasons for this are not completely known, but seem in the main to reflect climatic and soil advantages (see Chapter VIII).

In Gozo (Fig. 90) the range of vegetables grown is rather smaller than in Malta, and cultivation is much more closely confined to the settlement fringes. There are some exceptional districts, such as the Wied tal-Mistra in the north-east and the small depression lying north-west of Victoria, where good supplies of water have encouraged commercial specialisation.

TILLED LAND (Figs. 91 and 92)

Land shown in this category is that which either had a prepared tilth in readiness for further sowing and planting or had been cleared for summer fallow. This would follow early harvesting of sulla, *ferrasa* and potatoes or a long fallow period. Areas where tree-crop cultivation is widespread are obviously of little significance in this category. Classification problems arise in that cleared land unsuitable for summer cultivation (for reasons of environment or rotation) is, under Maltese conditions, difficult to distinguish from land about to be planted. However, it can be stated with some degree of certainty that in Malta the main belt of tilled land west of Siġġiewi and Żebbuġ represents land prepared for summer vegetable cultivation (see Chapter VIII). In Gozo, much of the tilled land of the west is prepared in readiness for summer cotton growing.

COTTON (*Qoton*)

The cultivation of cotton, which was widespread in the Maltese Islands from Classical times to the mid-nineteenth century, has been slowly reviving in Gozo during the last few years.

This is only the annual crop of which the seasonal range fell completely outside the survey period. Cultivation is most considerable around Żebbuġ, Għarb and San Lawrenz. Environmental conditions are far from optimum and the future of cotton growing depends largely on the efforts and interest of one textile firm and of the Government.

FALLOW LAND - Malta (Fig. 93)

Land classified under this head is that which neither carried a crop nor had a prepared tilth but which did not appear to have been unworked for more than about a year. Some such land is inevitably in the first stage of abandonment, but other areas have remained uncultivated for a variety of other reasons connected with quarrying, tenurial disputes, demands of the Defence Departments and various types of farming hazard.

1: Bowen-Jones et al. K-5 (1955-1958) 1961
EZ6 Malta EZ6
Malta

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[244]
[102]

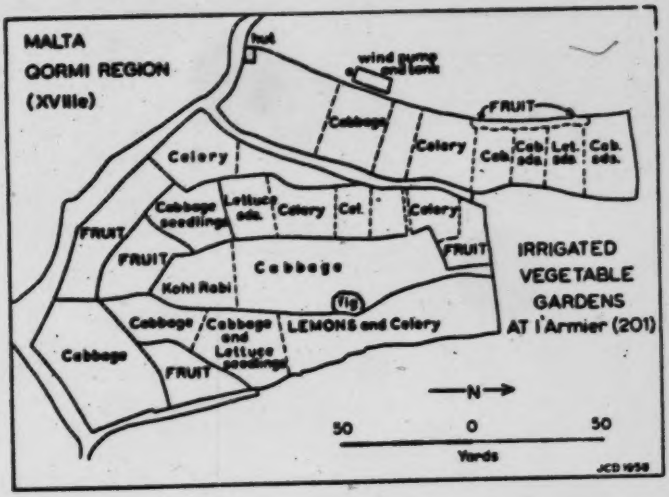

Fig. 120 Malta: Qormi Region.

XIX (a). THE MQABBA - KIRKOP PLAIN

Relatively intensive cultivation of a wide range of crops shows few noteworthy special features. An inverse relationship between the amount of land cultivated for cereals and sulla on the one hand and under potatoes on the other is apparent. The unusually massive concentration of sulla and cereal fields between Mqabba and Żurrieq may be compared with an equally marked concentration on potatoes around Kirkop and Safi. There is otherwise an even scatter of the normal dry-farmed subsidiary crops.

As over the Globigerina lands as a whole, dispersed settlement, while by no means absent, is clearly secondary to concentration in casals and villages.

XIX (b). THE SOUTHERN HILLS

The ridge lands are distinguished from the plain by differences in altitude, exposure, gradient, field size and accessibility. Fig. 121 illustrates some of the contrasts. Nevertheless, the crop range is not markedly different from that of the plains, save that the hardier legumes assume a greater importance. Onion growing would seem to be associated with local markets and with the difficulty of raising other vegetables.

[361] The casals of Qrendi and Żurrieq lie at the junction of these hills with the interior plain. Their functions include marketing and contracting for both sub-regions as well as minor fishing activity. Żurrieq, the larger of the two, has become the chief centre of the region, incorporating within its extended built-up area the satellite villages of Nigret and Bubaqra.

C.XX. THE EASTERN REGION

As described in Chapter I B, this region is one of hill ridges and depressions. Although relief is subdued, there is little level land and relatively minor structural and topographic features have a disproportionately large influence on agriculture. The Main Water Table, which rises but slightly above sea level is nearly everywhere far beneath the surface. The need for dry farming restricts the crop range considerably, even vines being virtually absent. Variations in crop assemblage, which result from a variety of physical and human factors, produce six distinct sub-regions.

[Text Continues on p. 269]

*159
423

Pawlu's holding at Easter, 1958.

Origin of TENURE	1958 T. S. K.49	No longer held in 1959 T. S. K.49
From own family on his marriage in 1955...	5-5-5	-..... 4-3-8
From own family since his marriage	7-4-5	
From his bride's family at marriage	5-0	16-0-0
From non-relatives, all since 1955	28-0-3	
	42-3-3	20-3-8

OWNERSHIP of land held by Pawlu.		Plots		Plots
Church (Cathedral (Mdina).....	3-4-0	5	16-0-0	var
Church (Ghaxb.....	1-0-3	4		
Church (Benefizzju (agent).....	4-3-0	2		
Civil Government.....	3-3-0	2		
Other farmers.....	4-0-0	2		
Sinjur (a Xewkija Baron).....	5-0	1	1-1-8	2
Owned by Pawlu himself.....	4-0	1	1-0-0	1
Sub-leased (4-yearly) from 8 farmers who hold on long lease, or own.....	24-0-0	var.adj.		
Military authorities.....	0		0	
No information.....			3-0	1
Notary (agent).....			1-5-0	2
	42-3-3		20-3-8	

The details of the 20-3-8 relinquished by Pawlu are significant:

Sub-let because of small-size and inaccessibility.....	7-0
Sold because of inaccessibility.....	1-0-0
Abandoned because of distance & inaccessibility.....	1-0-0
Option declined because of distance.....	16-0-0
Exchanged.....	1-2-8
	20-3-8

*159
423
427
On sixteen of his twenty-six plots of land Pawlu pays annually about £24 in rent. On average this works out at about 4 shillings per tomna for rough grazing land and £1.1.6d per tomna of cultivable dry (baghli) land. Pawlu himself receives an income of 5s 6½d per annum as rent for two small patches (totalling slightly more than a tomna) which he sub-lets. He himself owns the pivotal centre of his farm, and four sighan on which stands his house, cattle byre, goat shed, store rooms and small enclosures.

*159
234
311
[246]
Pawlu's present policy is to expand fodder production in order to eliminate much of the very high cost of purchased fodder. Along with this he is keen to acquire the use of rough grazing land for his goats where he can do so cheaply. The large block of this type of rough grazing which Pawlu acquired piece-meal during 1957 and 1958 makes the supervision of the animals easier than would be the case if he had to graze them in small fields adjacent to land carrying standing crops. Pawlu is cutting down the quantity of vegetables produced for sale each year since he is without any guaranteed market or price. He aims nevertheless to produce as much of the family requirements as possible.

[244]

*159 443 fluctuation. In such a situation he would find fixed annual repayments on loans for development much more difficult to meet.

SUMMARY OF CASE II

*159 (A goats milk producer with subsidiary cash-cropping).

A. Land.

[423] [427] Rents 10 separate plots, all dry land, in the Qawra Region.
Several landlords; total rent including house (£8.10.0) £35 p.a.

B. Utilisation.

[241] [311]
- Attention devoted mainly to fodders: wheat, barley, sulla.
- Grapes, some tomatoes and a few potatoes for sale.
- Various vegetables for home consumption.
- Grazing on waste and abandoned land.

[231] C. Livestock.
- About 25 goats: 2 rams and 23 milkers all over 2 yrs. old.
- 20 hens, 5 pigs, 1 mule.

D. Capital.

[423] [454] [412] [407] [426] [427]
(i) No freehold land.
(ii) Little or no liquid reserve.
(iii) Equipment: usual hand implements; no mechanical equipment until 1957 when he bought a rotary cultivator at £350 with a government loan to be repaid at £62 p.a.
- Hires tractor and plow at 15 to 25/- per tomna.
- Borrows spray from brother.

E. Labour. (v. Table 4: Analysis of Work Record, 1957-58)

[464]
- No permanent hired labour.
- Help from wife and children (8 children, all below 14 yrs. of age, 4 at school).
- Employs a vine-grafter at 25/- a day when necessary (150 vines can be grafted in one day).
- Pays friends and relatives £1 daily for help at grape harvest.

F. Production and Sales.

[234] [43] [231]
(i) 22 goats (Nov. 1957) yield 3 gallons of milk daily which sells at 16/9 (5/7 per gall.).
- Keeps only milkers as no accommodation for rearing.
- Female kids sold for breeding fetch 7/- each, male kids sold to butchers when 15 days old fetch same price.
- Buys 3 to 5 goats annually to maintain herd - price in 1957 £10 each.
- 5 pigs includes 3 for meat, 2 for breeding; piglets weaned after 40 days and sold a week later.

[245] [434] [244]
(ii) Vine shoots bought from Govt. Farm at 28/- per 100. Grapes sold to vintners. Price takes no account of quality.
- In 1957 sold 30 qantar at 44/- per qantar = £66.
- Tomatoes, small quantities sold, but bulk of crop made into paste for home use.

G. Husbandry.

[245] (i)
- Much effort expended on vines. Pruned in January, when 2 yr. old shoots cut back.
- Grafting in February; new grafts produce small crop the same year.
- Sprayed, plowed (3 or 4 times) in May.